INNOVATION FORUM
Building Bridges Between Policymakers and Innovators

"The Hunt for Weapons of Mass Destruction: Leveraging New Technology"
Stanford University
April 7, 2016

In a strange turn of history, the threat of global nuclear war has gone down, but the risk of a nuclear attack has gone up. More nations have acquired these weapons. Testing has continued. Black market trade in nuclear secrets and nuclear materials abound. The technology to build a bomb has spread. Terrorists are determined to buy, build or steal one. Our efforts to contain these dangers are centered on a global non-proliferation regime, but as more people and nations break the rules, we could reach the point where the center cannot hold.

-- President Barack Obama
April 5, 2009

Seven years ago, President Obama outlined a vision and the policy for the peace and security of a world without nuclear weapons in Prague, Czech Republic. That vision was driven by the tremendous threat posed by existing nuclear stockpiles, as well as nuclear weapons and material ending up in the hands of terrorists.

In the subsequent seven years, the Obama Administration reduced the nuclear threat through successes like the New Strategic Arms Reduction Treaty (New START), the Nuclear Security Summit Process, and the Joint Comprehensive Plan of Action with Iran. All these initiatives represent important progress, but there is so much more to do.

To deal with the size and scope of the threats we still face, it is clear that we need new tools, better techniques, and more information. The traditional means of tracking nuclear weapons are not keeping pace with the evolving threat. To explore how technological

President Obama delivers remarks in Prague, Czech Republic. (April 5, 2009, White House)

innovation in other sectors might hold lessons and opportunities for this challenge, the Department of State convened a workshop on "The Hunt for Weapons of Mass Destruction: Leveraging New Technology."

Partnering with Stanford University's Freeman Spogli Institute for International Studies, Center for International Security and Cooperation, and Preventive Defense Project, as well as Technology for Global Security, the State Department assembled a diverse group of experts from academia, national labs, non-governmental organizations, advocacy groups, foundations, U.S.

military, and other U.S. government agencies – as well as entrepreneurs, engineers, and other leaders from the tech industry who had never worked on nuclear issues, but whose expertise could provide new perspectives on the challenge. Participants ranged from storied leaders in the field, like former Secretary of Defense Bill Perry, to young and energetic students with their fingers on the pulse of the information revolution.

Keynote Remarks

This workshop was part of a broader effort by the State Department, called the Innovation Forum, to harness the creativity and innovation of Silicon Valley to generate new solutions to global challenges. As Deputy Secretary of State Antony Blinken explained in his opening remarks, "Technology has long been a tool of foreign policy…but today, it is something much, much more. From cyberspace to outer space, it is fundamentally altering the DNA of our foreign policy—disrupting, accelerating, or creating new horizons for diplomacy."

These quarterly Innovation Forum workshops can help innovators inform foreign policy at the highest levels, while helping government leaders outline foreign policy priorities, in order to spark and accelerate new ideas. Preventing the spread of nuclear weapons is among the U.S. government's most urgent priorities. "The question, the challenge, the goal we are discussing here is nothing short of a safer, more secure world for every single citizen of the world," Blinken said.

Deputy Secretary Blinken and Under Secretary Gottemoeller (State Department, April 7, 2016)

Under Secretary of State for Arms Control and International Security Rose Gottemoeller, who leads the Department's efforts in nuclear policy, described how the need for new tools and technology plays out daily, as the world works to track and lock down nuclear weapons and material.

In previous remarks delivered at Stanford, she described how negotiating New START from 2009 to 2010 made it clear that we would not be able to make more significant nuclear reductions if we continued to primarily rely on verifying those reductions with technology largely developed in the 1970s. As units of nuclear material continue to get smaller and harder to track, our tools for verification and monitoring need to improve and expand.

In response to the many nuclear experts who say it is impossible to monitor small objects or clandestine processes, Under Secretary Gottemoeller noted that, "in this era of infinite

information, our inherent ability to verify and detect things has actually grown. We just have to figure out how to harness the information for our purposes." To those who doubt that our negotiating partners would accept the use of innovative verification and monitoring tools for arms control agreements, she encouraged workshop participants to focus on new ideas and leave the negotiations to her and other negotiators. In other words, creative minds should focus on developing or applying new tools and let the diplomats worry about how to apply them.

Under Secretary Gottemoeller also pointed out that the nuclear community could learn lessons and build on the progress of other sectors already tackling the problems of monitoring and verification. "If Amazon Prime can track billions of small objects," she said, "there's no reason we can't figure out how to better track weapons of mass destruction (WMDs)." The environmental community, for example, has long been tracking and tracing polluters, wildlife traffickers, and illicit loggers. The U.S. government's Sea Scout Program is working to track illegal fishing worldwide, aided by state-of-the-art tools developed by technologists at Google, Catapult, Sky Truth, Vulcan, and others.

Defining the Challenge

The workshop focused on whether new technology could help enlist the broader public to better "hunt" for weapons of mass destruction. This idea, known in the academic literature as "societal verification" or "public technical means," is a relatively new concept made possible by recent advancements in commercial technology. It is a concept that some expects approach with skepticism, a significant departure from traditional approaches that rely exclusively on technology controlled by government or the international community. The goal of the workshop was to identify a number of ways in which new technology could help, and then develop pilot projects to test core assumptions about the utility and feasibility of using these methods to engage the public on this challenge.

Participants discuss key challenges (State Department, April 7, 2016)

A number of key insights and conclusions emerged from the initial discussions and break-out groups:

- Workshop participants focused on the challenges of (1) how to use data to verify elimination or control of nuclear weapons; and (2) how to use "big data" to monitor nuclear material and be able to detect dual-use activities of concern.

- An early challenge identified by participants is the lack of uniform data available across countries, which might impede the application of a broad arms control agreement. Data would likely be particularly limited in countries that would want to hide a WMD program.

On the other hand, governments may also want to leverage their own citizens to generate data to support their claims of compliance with an arms control treaty.

- In any effort to engage the public on finding nuclear weapons or material, the group agreed that it would be necessary to protect citizens from potential reprisals by their governments for reporting or "spying" on suspicious activities.

- Participants also explored the challenges of gathering credible data. Public data collection depends upon citizens trusting that the recipient of information, be it a U.S. or international organization, can be a trusted arbiter of that information. This would be the case with public measurements of radiation levels or seismic data collected through accelerometers on smartphones, for example. That trust would need to go both ways – governments who encourage the public collection of WMD-related data would want to know that the data is not part of a "spoof."

State Department's Zvika Krieger moderates discussion with nuclear experts. (State Department, April 7, 2016)

- Participants noted that in the private sector, data sets are provided voluntarily by customers for others to analyze. In the WMD realm, citizens do not have access to the closed data sets collected by governments. Citizens will have to generate *their own* data sets. Integration of multiple data sources is what enables observers to "tip and cue" onto a specific geographic location. Technology for such cueing exists, but there is too much open source data that we don't have a way to analyze. Numerous satellite companies in attendance confirm the availability of global mapping imagery, but additional data streams are needed to know where to look.

- Despite political, technical and legal challenges, there is broad agreement that citizen data can help track nuclear activities -- many NGOs are already proving this today -- but inspection tools used to verify U.S.-Russian bilateral arms control treaties have not kept up with citizen-driven technological advances or "public technical means."

- Participants noted that publicly collected data could be used to complement government-collected data and that it could be possible to leverage civilian actors in a way that is supported by governments. Small satellites and overhead imagery could also be used to give greater fidelity to data that's already published by non-governmental actors, such as the Nuclear Threat Initiative's Nuclear Security Index.

- Participants also saw value in appealing to commercial vendors of dual-use products to help build generic profiles of their consumers to be able to spot anomalies in consumer behavior that might indicate nefarious activity.

Technology Solutions and Pilot Projects

The group discussion and breakout session yielded three primary categories of data that would be helpful in the tracking of nuclear weapons: visual data, social media, and sensor data. Workshop participants divided up into three groups to further explore the challenges and opportunities within each data category, and then develop pilot projects to test key hypotheses about the potential utility and feasibility of public collection of that data.

Visual Data

The visual data collection group worked to define what types of visual data would be required to track weapons of mass destruction and how citizen data can complement those efforts. Potentially relevant visual data included images of facilities and production sites; fueling operations; construction sites; weapons delivery platforms; building interiors; mines and mills; craters; land use and land use changes; land and sea shipments; transport/logistics equipment; movement of intellectual capital; and speeches/TV presentations.

The group determined that the public could help in the analysis of visual data by flagging and tagging suspicious activity, and that engaging the public can add to the data collection and analytic capacity for smaller countries. This analysis could supplement the works done by governments and international organizations and provide corroboration, adding to the fidelity of data.

The Visual Data working group starts outlining their pilot project idea. (State Department, April 7, 2016)

Visual Data - Pilot Project 1: Create machine-learning triggers relevant to nuclear weapons to automate satellite imagery analysis.

- Identify potentially nefarious sites by creating a database of images related to suspicious activities that can be picked up by machine-learning analysis of massive quantities of imagery.
- Pilot project: Create a narrow data set, using historical imagery linked to proliferation sites, of visual cues related to nuclear activity. Test on a limited set of images (perhaps from other known proliferation sites) to see if machine learning can identify similar activities in other contexts.

Visual Data - Pilot Project 2: Test the effectiveness of crowdsourced analysis to identify nuclear sites in visual data.

- Pilot project: Tests the size and composition of crowd effects on the speed and efficacy of analysis. Metrics of the study would consist of how many people participated and the manner in which they participated.

Social Media

The social media group determined that people are the best sensors, and could be leveraged to keep track of existing nuclear weapon stocks and for averting or responding to a nuclear terrorism event. Online communities are already invested in what is happening around them and readily have access to information that the government does not have. The full potential of online communities to work hard security issues is a resource that has not yet been tapped.

The Social Media Data working group brainstorming about how to apply new technologies to nonproliferation efforts. (State Department, April 7, 2016)

The group agreed that we need to build a crowd of global citizenry, so that the intelligence community is not the sole collector of data on weapons of mass destruction. Citizens need to believe that they have a role to play in verifying nuclear arms control treaties. A hurdle to greater involvement is that the tech community lacks specialized knowledge of these issues to know what types of data are needed. Crowdsourcing can be improved if, for example, players are educated through a game to know what looks suspicious, such as the defining features of a nuclear reactor.

The collection of social media data is already being done in Silicon Valley; it is the predictive part that needs more work. "Pattern of life" is needed to first define baseline activity in an area, which can then be used to more easily identify anomalies.

Social Media Data – Pilot Project 1: Use artificial intelligence to analyze open source data to predict threats before they materialize.

- Explore whether open source data streams, such as Twitter and YouTube, could analytically predict threats before they materialize.
- Artificial intelligence or a "neuronetwork" can also complement existing efforts of governments and international organizations, but it is critical that data scientists and technologists have resources to ensure the veracity of the data collected.
- This is a form of "deep learning" – how can computers be trained to get better at identifying and automatically triggering collection at suspicious sites or newly constructed sites?

Social Media Data – Pilot Project 2: Gamification to engage public in monitoring potential nuclear weapon locations.

- Create a pilot project that taps into online communities, specifically gaming, to aid monitoring where nuclear weapon devices may exist.
- Use "gamification" to create a partnership that leverages gamers on the Internet. Open source communities usually don't need to be incentivized -- they already want to do something good.
- Translate the time these communities spend in game-play to time working on these issues, and that would equate to substantial contribution. These communities have access, expertise, and processing power to solve problems.

Social Media Pilot Project 3: Create an algorithm that investigates allegations of nuclear arms control treaty infringements.

- Create a platform that would allow an expert group, appropriately vetted, to sift through the credibility of claims, just as analysts assess whether YouTube videos purporting to show chemical weapons use in Syria reflects the on-the-ground truth.
- Explore how to harness crowdsourcing to flag and tag imagery information on suspicious activities while building in protections for data collectors. Experts could be used to verify the authenticity of data and have them housed in international centers alongside law enforcement.
- Create a "Pinterest of data sources" or possibly wikis, as they are already being used by tech communities. The group identified the need to account for denial and deception in those who provide data.

A workshop participant presents the Sensor Data working group's pilot project idea. (State Department, April 7, 2016)

Sensor Data

The sensor group explored the various ways sensors could be applied in the search for WMDs, but also noted the limitations and legal issues involved in those applications. For example, the group discussed whether smartphone companies could build sensors into their products, but many in the group thought this would create privacy and "Big Brother" issues. There is also the challenge that accurate sensors for tracing radionuclides, for example, do not yet exist. Before getting into the issue of large scale deployment of WMD sensors, the group thought that sensor development should be the focal point. They also posited that sensor development should focus on how to monitor and disrupt a nuclear or radiological event before it occurs.

Senor Data – Pilot Project 1: Competition to test ability of various sensing technology to identify a gamma-emitting object in a crowded area.

- Create a competition either in a crowded area, such as Grand Central Station or a college campus, where players try to detect an object that emits gamma radiation through a variety of sensing technologies that could be tangential to the device itself. Given the fact that an adversary will mask the signature of a nuclear or radiological device, layering sensor data could reduce the risk of a nuclear event.
- Ask competitors to determine how to find the "canary in a coal mine," by discovering the perceptive difference in a delivery vehicle of a nuclear device (e.g. the truck or ship trafficking nuclear material)
- Other areas of possible exploration are sensors that would enable governments to geo-locate missing or stolen radiological sources.

The Way Forward

The workshop accomplished the five main goals set out by the organizers:

- Generate creative thinking on this topic by bringing together non-proliferation experts with experts from the tech community who are new to the challenge.

- Inspire people to work on this challenge who otherwise wouldn't; create new "ambassadors" for this challenge.

- Network people from different communities to form potential collaborations, to avoid what was called "an infinite conversation with ourselves."

- Generate ideas for "experiments" for people who want to continue pursuing this issue.

- Collected contact information of professionals who should be asked to participate in future conversations.

A significant percentage of workshop participants expressed interest in continuing to work on honing and then executing these pilot projects. Working groups will be formed around each topic to facilitate this continued effort. A number of participants have offered to host follow-on workshops and convenings as well. The workshop organizers will also be creating an online social network to facilitate continued collaboration among workshop participants on this broader challenge.

This paper will be circulated publicly and serve to broaden the discussion beyond those who attended the workshop. For individuals who did not attend the workshop but would like to participate in a follow-on working group or host follow-on events, please email Harry Heintzelman (HeintzelmanHL@state.gov).

It is clear that together, these communities can create new ways to collect information and better integrate the systems that exist to aid in the fight against the nuclear threat. There are many legal, political, and diplomatic barriers ahead that need to be overcome. Stakeholders will need to work carefully and deliberately to integrate these technologies in an ethical manner. It should

also be noted that the goal of using information technology and open-source data is to enhance, not replace, our current systems.

Nevertheless, the concepts discussed over the course of a day could be the seeds for a stronger arms control and nonproliferation regime. Just like seeds, those concepts, ideas, and suggestions need to be tended and further developed.

Selected feedback from workshop participants

 "Liked all ideas and believe they could be very useful. I particularly liked: campaigns for treaty verification and a "Grand Central Station" crowd-sourced exercise (such as proposed by the sensor data group)."

"Open detect artificial intelligence allows for timely detection of threats, output in text. Idea: codify 'trigger language' and coding 'intent' language and 'violent language.' Problem is (that it would generate) false positives."

"The ideas were very comprehensive, it would be great if there was more time to go into depth on more issues. The vast array of people and experiences made the ideas robust."

"Mobile 'in site sensors' could tell us any outstanding variations in detecting radiation and its products (e.g. gases), as well as the typical material found in improvised explosive devices or material associated with nuclear weapons."

 "Lots of good ideas but many unknowns about what data already exists and what is currently being done by U.S. government along the lines of these proposals. (We should) loop in civil society/activists already involved in mobilizing citizen actors (in other domains).

Participants from the following organizations:

Andreessen Horowitz
Archon
Argo Systems
Bayes Impact
BMNT Partners
Bulletin of the Atomic Scientists
Canadian Consulate-General
Center for Advances Study in the Behavioral Sciences, Stanford University
Center for International Security and Cooperation (CISAC)
Cisco
Cloudera
Comprehensive Nuclear-Test-Ban Treaty Organization CTBTO
Data4development
Devex
Enmo technologies
Fast Company
Flexport
Foresight Institute
Galvanize SF
Google
Hacktivision
Inside Revolution
IPSO Alliance
James Martin Center for Nonproliferation Studies
King's College London
Lawrence Livermore National Laboratory
Lockheed Martin
LoRa Alliance
McArthur Foundation
Middlebury Institute of international Studies
N Square
Naval Postgraduate School
Nervana Systems
Nuclear Science and Security Consortium
Nuclear Threat Initiative
Orange
Orbital Insight
Palantir Technologies Inc.
Passion Play Partners
Planet Labs
Ploughshares Fund

Preventive Defense Project
Qelzal Corporation
Quadra Pi R2E
Rallyteam Inc
RAND Corporation
Raytheon Applied Signal Technology
Revealo
Robotics IND, inc.
RocketSpace
Singularity University
Skoll Global Threats Fund
Spheara
Stanford U.S.-Russia Forum
Stanford University - International Policy Studies
Stanford University - Electrical Engineering
Stanford University - Handa Center for Human Rights and International Justice
Stanford University - Law School
Stanford University - Physics
Starburst Accelerator
Starfish Institute
Techfugees
Technology for Global Security
Terra Bella (Skybox)
TrustInSoft
U.S. Air Force
U.S. Air Force Agency for Modeling and Simulation
U.S. Department of Commerce, Bureau of Industry & Security, Office of Export Enforcement
U.S. Department of Defense - Defense Innovation Unit Experimental
U.S. Department of Defense - Special Operations Command
U.S. Department of Defense Joint Staff Deputy Directorate for Battlespace Awareness (JS/J28)
U.S. Federal Bureau of Investigation
U.S. State Department
University of California, Berkeley
University of New Haven
UrtheCast
Walt Disney Company

Can Silicon Valley Help The State Department Track Weapons Of Mass Destruction?

The State Department is looking to the tech world for new ideas to help solve increasingly difficult (and scary) problems.

By E.B. Boyd, [Fast Company](#), April 14, 2016

The Paris and Brussels attacks got a lot of people thinking about dirty bombs. After all, what if the ISIS perpetrators had acquired a radiological weapon? Top U.S. officials have worried about nuclear terrorism ever since the Soviet Union collapsed and its warheads threatened to roll away into unsavory hands. Indeed, just last month, at the international Nuclear Security Summit, President Obama asked fellow world leaders to contemplate that very prospect. But the U.S. government is also looking to Silicon Valley, and the innovation community as a whole, to help come up with solutions to this frightening problem—and a host of other difficult issues.

Last week, members of the State Department descended on Stanford University to host a daylong brainstorming session on how to contain all sorts of weapons of mass destruction, including nukes. The 150 people who showed up were a far more eclectic group than you'd find at a usual WMD confab. Wireless executives hobnobbed with criminal investigators. Analysts from microsatellite companies traded business cards with military officers. Data-mining experts rubbed elbows with some of the world's top disarmament officials.

Keeping track of warheads used to be relatively straightforward. Only a few countries had them, and they tended to stay tucked inside giant missiles. If you knew where the missiles were, you knew where the nukes were. It was no cakewalk, but the United States felt fairly confident monitoring Soviet military movements from space.

Now, however, it's potentially much easier to build a radioactive bomb the size of a suitcase. Keeping track of all the "hot" stuff, that can be broken down into smaller pieces, is a fundamentally different puzzle than knowing how to spot big Russian trucks. The sophisticated containment system the world spent decades constructing isn't suited to this new problem. That's why some high-ranking officials—including Rose Gottemoeller, the State Department's under secretary for arms control and international security—are embracing the notion that some of the best ideas on how to tackle the new challenge might come from people who've never heard of terms like "isotopics" or "dismantlement queue." "If Amazon Prime can track billions of small objects," Gottemoeller told the crowd at Stanford, "there's no reason we can't figure out how to better track WMDs."

The workshop was the latest project in a larger innovation jag spearheaded by Deputy Secretary of State Antony Blinken. Floppy-haired, blues-guitar-loving Blinken stepped into his new role early last year as the second-in-command at the State Department. In addition to his formal duties, a deputy gets to champion a few pet projects. For Blinken, building bridges to the tech community has become one of those areas of focus. "I've spent 23 years in government," he told me at a sunny campus café not far from the workshop. "More and more, it was becoming evident that many of the problems we were trying to solve were at the intersection of foreign policy and technology." The dirty bomb issue is a prime example—it takes diplomacy to coordinate other governments in the fight against terrorism, and technology to track such hard-to-trace weapons.

Standing at a podium at Stanford, Blinken described how technological innovation is now as crucial to the State Department's work as its traditional focus on economics and political affairs—even though the department isn't exactly fluent in tech. As Blinken put it, sometimes it feels like "we need scientists and technologists in the room just to tell us whether we need scientists and technologists in the room." That's why Blinken has instituted an "Innovation Forum" at the State Department, which works on convening gatherings like the WMD workshop, and which he hopes will inspire self-starting, out-of-the-box-thinking, unconventional-solution-producing innovators in the tech community to dedicate some of their time and brainpower to tackling major international issues.

For example, in January, the State Department gathered a different group, also at Stanford, to explore ways to educate the hundreds of thousands of Syrian children now living in refugee camps. Without education, those children will have limited economic opportunities in the future—and young adults with limited prospects are especially vulnerable, as Blinken put it at that gathering, to "the siren call" of terrorism. Another meeting, in New York, explored FinTech. Historically, the United States and its allies controlled bad actors by cutting off their bank accounts using antiterrorism laws. But cryptocurrencies such as Bitcoin now let criminal networks make end runs around such controls. A third gathering in Washington sought new ways to monitor adherence to ceasefires, such as using smartphones and geolocation for crowdsourced reporting of violence.

At the Stanford WMD conference, participants were broken into small groups, where they dove into energetic exchanges about how sensors, data, and social media might help officials track fissile material—and maybe even help identify, *Minority Report*-style, when someone might be planning an attack. One of the participants, Brian MacCarthy, who recently opened a strategic innovations office for Booz Allen Hamilton in Silicon Valley, listened to the discussions—and was impressed. Before he moved out West, he worked inside Washington, selling products and services to government agencies on behalf of a large IT provider. "I was in D.C. for 10 years," he noted, "and I never could have gotten this kind of a conversation going."

Blinken's ideas fall in line with a larger push in Washington to build more bridges to the tech sector and leverage the industry's creative, can-do spirit to improve the way government operates. Hillary Clinton was the first secretary of state to turn to the modern tech sector for help on the international front. The Pentagon opened an office in Silicon Valley last year, as did the Department of Homeland Security. And, as this publication explored in depth last summer, President Obama has made it a priority to get all-star tech natives to do tours of duty inside the halls of government.

Still, engineering a cultural transformation at the State Department isn't easy. Washington, like any large, powerful institution, can be set in its ways. "Just the concept of trying new things is an uphill battle," said State Department senior advisor for tech and innovation Zvika Krieger in a phone conversation after the WMD event. Krieger told me that, when he was planning one of the earlier workshops, he invited some key D.C. stakeholders to participate—but "they were very skeptical. Their point of view was, 'We've never worked with tech before, and we've been fine without them.'"

Krieger himself doesn't share that old-school orientation. He's a thirtysomething former journalist and innovation specialist who once worked for Secretary of Defense Ashton Carter back when Carter was the number-two guy at the Pentagon. Krieger is taking an iterative approach to the workshops, designing successive events based on learnings from previous ones. "We're

prototyping how we approach Silicon Valley," says Krieger, who always seems to have a merry twinkle in his eye. "We're seeing which formats work and what issues we should engage on." The difference between traditional government approaches and Silicon Valley methods were visually palpable at the WMD event. Nuclear Security Summits, which take place biannually, are solemn meetings at which world leaders sit stiffly around <u>enormous round tables</u> (that, ironically, and most likely unintentionally, bear an unfortunate resemblance to the ominous <u>war room</u> in *Dr. Strangelove*). The large conference room at Stanford, by contrast, was strewn with Post-it notes and Sharpie markers, and chairs were pushed aside in favor of casual small-group discussions.

By the end of the day, the teams came up with a handful of ideas—for example, testing how effective crowdsourcing can be at identifying nuclear sites in visual data, or holding a competition to see how well various sensing technologies could identify the presence of dangerous types of radioactive material in a crowded area. The participants were clearly excited by the challenge. "I've been working on some pieces [of my research] for 20 to 30 years," said Kent Langley, a professor at Singularity University and a data-science entrepreneur. One of his companies has developed a platform that crunches large amounts of data to predict the intentions of potential customers, so a company can better market to them. One of the workshop small groups, by contrast, discussed how data could be crunched to figure out a potential terrorist's intentions. The workshop, Langley said, made him realize his work could help "save lives." "Let's do that!" he said.

This is exactly what the State Department is banking on. Blinken and Krieger know that single daylong sessions can hardly hope to produce immediately actionable solutions, but they want to spread the message that the government no longer feels a need to retain a monopoly on solving these problems. Blinken's team hopes top minds in the Valley and other innovation hubs will be inspired to take a stab at these big, gnarly questions. Their plan might be working. Just weeks after the workshop on Syrian education, some participants forged ahead on their own and tinkered with some of the ideas born during the session, such as using mobile phones for language instruction, or distributing tablets preloaded with educational content in refugee camps and recruiting solar companies to provide the panels needed to power them.

This kind of scrappy, just-dive-in response from Valley denizens gives Krieger hope. "In D.C., we would have spent months battling different bureaucratic hurdles to get all of the different stakeholders to buy in," he said, "and we would have had to find the money for it when so much of our money is apportioned years in advance."

On the other hand, Blinken and Krieger have precious little time to make headway. Obama leaves office next January. Even if a Democrat wins the White House in the fall, it's standard practice for political appointees, like Blinken, to step down, so that incoming secretaries can bring in their own teams. Blinken's "minimal viable product," then, is just to produce a credible proof of concept for his meeting-of-the-minds program. "My hope is that this becomes institutionalized by the time we leave," he said. "And that whoever follows us wants to continue it."